NC Energy Efficiency Recommendations

March 23, 2018

Mr. Scott Tew

Executive Director, Center for Energy Efficiency and Sustainability (CEES) at Ingersoll Rand

Chair, Energy Efficiency Committee of the NC Energy Policy Council

800-E Beaty Street

Davidson, NC 28036

Dear Mr. Tew,

North Carolina Building Performance Association (NCBPA) offers the following recommendations to your Committee in support of its goals to increase the strategic use of energy efficiency in North Carolina, particularly as it relates to the built environment.

Following the release of our [HYPERLINK "http://buildingnc.org/resources/research/"] report last October, NCBPA has continued researching energy efficiency policies and has developed a variety of recommendations that will enable economic development, job creation, building infrastructure resiliency, ratepayer savings and environmental benefits for our state.

The U.S. Department of Energy's January 2017 [HYPERLINK "https://resstock.nrel.gov/factsheets/NC"] identified $2.1 billion in annual utility savings available through energy efficiency improvements in North Carolina single family homes alone. This equates to annual savings of 30.0 trillion Btu from gas, propane and fuel oil and 14.4 billion kWh in electricity. Additionally, Duke Energy's 2016 North Carolina DSM Market Potential Study found 4,285 MW of economic potential through demand side management and 6,041 MW of technical potential in the Duke Energy Carolinas territory for 2017 – 2041, and 2,385 MW of economic potential and 3,710 MW of technical potential for Duke Energy Progress for the same period. The savings and benefits to North Carolina from energy efficiency are immense.

We offer you and your committee the following recommendations in these three categories:

1. Implement a top-down "Energy Efficiency First" strategy as North Carolina's priority method for addressing current and future energy needs.
2. Task the Utilities Commission and Public Staff with delivering an Energy Efficiency Potential Study and actionable steps to achieve savings and benefits through energy efficiency.
3. Improve energy efficiency minimum requirements and available options in North Carolina's residential and commercial Building and Energy Codes.

On behalf of North Carolina's building performance companies and professionals, we appreciate your leadership in increasing the strategic use of energy efficiency in North Carolina.

Sincerely,

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Recommendation #1:

Implement an "Energy Efficiency First" Strategy as North Carolina's Priority Method for Addressing Current and Future Energy Needs

Governor Roy Cooper to issue resolution recognizing "National Energy Efficiency Day" for North Carolina as part of the state's strategy to prioritize energy efficiency.

NCBPA recommends that the Governor issue a Resolution recognizing "National Energy Efficiency Day" in North Carolina as part of the state's strategy to prioritize energy efficiency in addressing current and future energy needs. The resolution can be announced on "National Energy Efficiency Day" taking place on October 5th, 2018.

Precedent for prioritizing energy efficiency [HYPERLINK "http://vaeec.org/governance-executive-committee-on-energy-efficiency/"], where "in the spring of 2015, Virginia Governor McAuliffe formed the Executive Committee on Energy Efficiency and charged it with developing strategies and recommendations to achieve the goal of a 10% reduction in retail electricity consumption in the Commonwealth by 2020." Since 2015, the Committee has worked towards:

1. Developing strategies to achieve goal of 10% reduction in retail electricity consumption by 2020.
2. Promoting a "New Virginia Economy" that emphasizes [HYPERLINK "file:///C:\\Users\\dryan\\AppData\\Roaming\\Microsoft\\Word\\a.%09https:\\www.nrdc.org\\experts\\walton-shepherd\\gov-mcauliffe-takes-lead-climate-energy-leadership"].
3. Creating the [HYPERLINK "https://governor.virginia.gov/newsroom/newsarticle?articleId=12573"] that provides $20 million to improve energy efficiency opportunities in the state.

While not well-known to most citizens in the state, North Carolina's energy efficiency industry includes more than 50,000 workers across the state – more than all other energy sectors combined – and generates an estimated $15 billion in annual revenue that accounts for nearly 3% of the state's gross domestic product. A [HYPERLINK "https://resstock.nrel.gov/factsheets/NC"] determined that 31% of the energy used in North Carolina single family homes could be saved through energy efficiency, amounting to $2.1 billion in annual utility bill savings.

Establish Energy Efficiency as the Priority Strategy in New State Energy Plan Development

NCBPA recommends the creation of a new State Energy Plan that prioritizes energy efficiency through the incorporation of these activities:

1. Establishing a goal of at least 2% net utility energy efficiency savings by 2023.
2. Following through on the Energy Policy Council's 2016 recommendation to increase SB668's previous 30% energy and water reduction goal for public buildings to 40% by 2025.
3. Increasing state funding requirements and detailed roles for the State Energy Office and State Energy Centers.
4. Increasing state funding for performance contracting programs including the Utility Services Initiative (USI) and Department of Energy Assistance and Customer Service (DEACS).
5. Moving back to a one-year annual energy reporting period for public buildings and institutions.

Expand Energy Efficiency Participation in the Energy Policy Council

NCBPA recommends that the Energy Policy Council and Energy Efficiency Committee are expanded to include leaders from North Carolina's energy efficiency construction, manufacturing, education, retail, real estate, utility and transportation industries. Doing so will support the state's transition to implementing energy efficiency as North Carolina's priority method for addressing current and future needs. This effort can be completed as part of larger state energy planning efforts that are needed, similar to what Virginia and South Carolina did in 2016 and 2017, respectively. NCBPA and partner organizations will assist in recommending committee members.

Recommendations for the council and committee to consider include:

1. Researching new programs and incentives for improving the energy efficiency of manufactured housing.
2. Expanding incentives for Combined Heat and Power deployment.
3. Increasing state-level support for consumer financing programs such as on-bill financing and C-PACE Financing.
4. Engaging industrial firms to design energy efficiency programs that work for them and utilities, reducing or eliminating the large number that currently opt-out of these programs.
5. Leading key stakeholder education on energy efficiency in state government and the legislature.

Recommendation #2:

Task the Utilities Commission and Public Staff with Delivering an Energy Efficiency Potential Study and Actionable Steps

NCBPA recommends that during the 2019 legislative session the state authorize a new and modern Energy Efficiency Potential Study with actionable steps to increase the utilization of energy efficiency as a resource in the state. North Carolina is at a significant disadvantage in securing government, utility and consumer support for energy efficiency due to the lack of available data on the potential for energy efficiency to positively impact the state's economy, workforce and environment.

Energy efficiency is an energy source in its own right that can boost growth while accelerating a transition to cleaner energy sources. The study is recommended to better understand the full extent of opportunities available in North Carolina and would include analysis on the current and future usage and impact of energy efficiency on the electric grid, the transportation infrastructure and in the built environment. This quantitative data would be able to provide valuable guidelines for future regulation and legislation involving energy and energy efficiency as well as highlight areas where efforts would be most effective.

The study is needed to answer these and other key questions about energy efficiency in the state:

- What is the opportunity for energy efficiency in North Carolina?
- What can energy efficiency do that is not being done today?
- How could energy efficiency benefit other energy generation and saving sectors?
- What would the economic potential or impact be on North Carolina?
- What policies would be impacted by increased energy efficiency investment?
- What opportunities exist for regulated and non-regulated utilities?

Funding for the study could be established through a legislative process similar to [HYPERLINK "https://energync.org/energy-storage-working-group/"] that mandated a study on energy storage:

- NCBPA and partners will work with legislators to enable legislation requiring the study.
- The legislation can authorize a level of state funding to be matched by private industry.
- Groundwork for this study is already underway at NCBPA, with past (but outdated) studies available to use as benchmarks.

The Utilities Commission and Public Staff can then use this study to support regulatory changes that create a greater focus on energy efficiency, including modernizing North Carolina's utility energy efficiency cost effectiveness testing policies and procedures. Many national and regional resources available to support these efforts.

Past studies on North Carolina's energy efficiency market contain valuable information but are presently outdated. These past studies found:

1. [HYPERLINK "https://info.ornl.gov/sites/publications/Files/Pub57432.pdf"]
    a. *Prepared by Oak Ridge National Laboratory and NC Clean Energy Technology Center for the U.S. Department of Energy in 2003.*

   b. A modeled 3.4% reduction in residential electricity demand from 2003 baseline to 2020 through the use of market incentives alone. Valued at 2.3 TWH or $173M savings per year.
   c. A modeled 6.7% reduction in commercial electricity demand for the same period. Valued at 3.4 TWh or $237M savings per year.
   d. Residential lighting, the industrial sector and higher efficiency standards were NOT examined.
   e. Net result of 6% electricity savings from market programs and technology advanced valued at over $400M in savings per year.
2. [HYPERLINK "http://www.ncuc.commerce.state.nc.us/reps/NCRPSEnergyEfficiencyReport12-06.pdf"]
   a. *Prepared by GDS Associates for the North Carolina Utilities Commission in 2006.*
   b. Potential energy savings for electric energy efficiency measures is 33% of projected 2017 kWh sales in the state with an achievable savings potential (below cost-effectiveness screening) of 20%.
   c. The cost-effectiveness potential for energy efficiency would reduce electric energy use by 14% by 2017.
3. [HYPERLINK "https://energy.gov/sites/prod/files/2017/07/f35/EEpotential%20webinar_7-13-2017.pdf"]
   a. *By Electric Power Research Institute (EPRI) and U.S. Department of Energy in 2014.*
   b. 30.9 million MWh of EE potential savings from electricity for all sectors from 2016 – 2035.
   c. 56% projected achievement as percent of economic potential %.
   d. Potential 18.4% electric savings as percent of projected adjusted baseline sales (16%).

In addition to leveraging these studies, NCBPA strongly recommends incorporating findings from Duke Energy's North Carolina DSM Market Potential Studies. The most recent study completed on December 19, 2016 found 4,285 MW of economic potential through demand side management and 6,041 MW of technical potential in the Duke Energy Carolinas territory for 2017 – 2041. For the Duke Energy Progress territory, 2,385 MW of economic potential and 3,710 MW of technical potential were identified for the same period.

The [HYPERLINK "https://resstock.nrel.gov/factsheets/NC"] determined that 31% of the energy used in North Carolina single family homes could be saved through energy efficiency, amounting to $2.1 billion in annual utility bill savings equal to 30.0 trillion Btu per year in gas, propane and fuel oil and 14.4 billion kWh in electricity savings.

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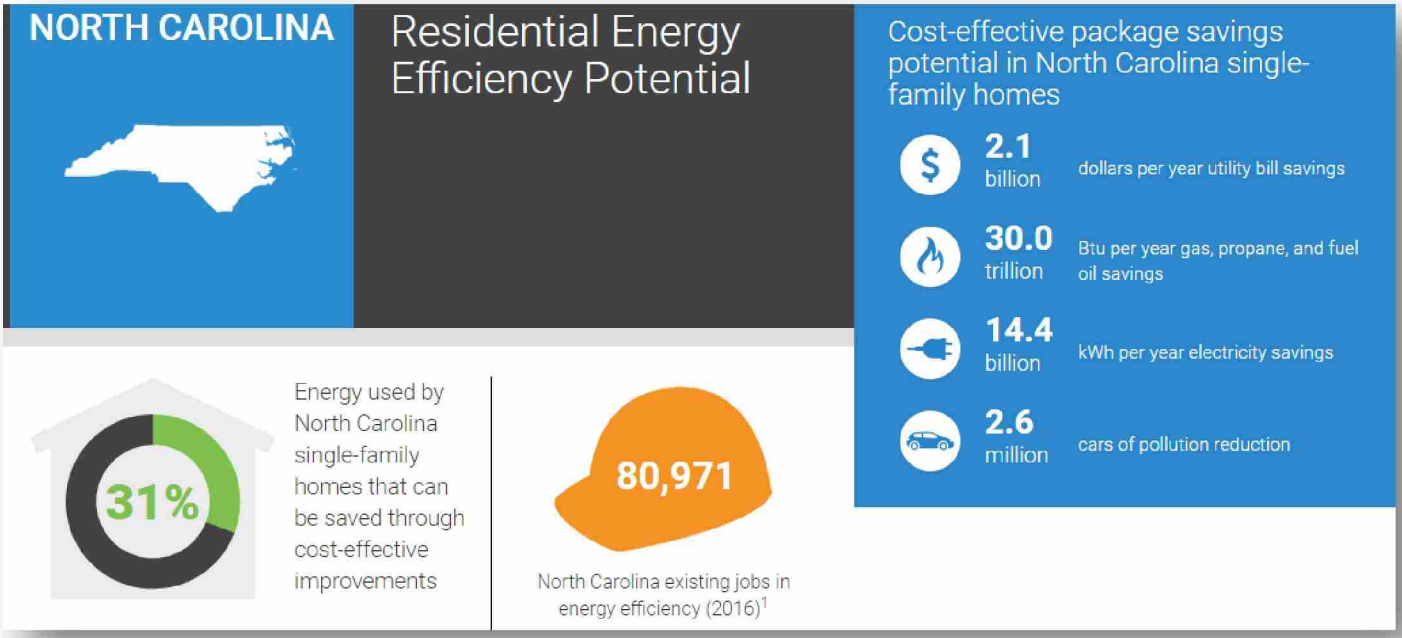

Source: [HYPERLINK "https://resstock.nrel.gov/factsheets/NC"]

Recommendation #3:

Improve Energy Efficiency Minimum Requirements and Available Options in North Carolina's Residential and Commercial Building and Energy Codes

NCBPA recommends that the state government support improving energy efficiency minimum requirements and available options in North Carolina's residential and commercial building and energy codes. State-level support is needed to align the Energy Efficiency First resolution's goals and practices with the state's current building and energy code process, led by the NC Building Code Council, whose positions are appointed by the Governor.

North Carolina will adopt a new 2018 building and energy code on January 1, 2019 following more than 18 months of debate and negotiations through the NC Building Code Council. Some low-level improvements to minimum energy efficiency requirements will be provided in the next code, but, as the next code is in place for a six-year period of 2019 – 2024 (a legislative change from 2014 that NCBPA opposes), it will be challenging to make significant improvements until 2024. To move North Carolina's code forward during this cycle, NCBPA proposes implementing a variety of small changes that will yield benefits to builders and developers, contractors, utilities and North Carolina citizens and businesses.

Priority Areas for Residential and Commercial Energy Efficiency Code Changes

NCBPA recommends addressing a few key energy code areas first to support more detailed changes to follow. These priority areas include:

1. Supporting legislation to add an Energy seat to the NC Building Code Council. The Governor can then appoint an experienced Energy professional to the position.
2. Expanding commercial building commissioning requirements from mechanical, electrical and plumbing only to include building envelope and enclosure commissioning verified by authorized third-party testing agencies.
3. Establishing state-supported resources that effectively address the housing industry's concerns of decreased housing affordability through more stringent residential energy codes that support ongoing energy savings and health benefits for consumers.
4. Targeting 2024 as a significant step forward for minimum residential and commercial building and energy codes that may include homes and buildings that are "plug-in ready" for solar PV, storage and other energy efficiency measures.

Needed Market and Regulatory Changes Related to Energy Code

To increase the effectiveness of these and other code changes in the state, NCBPA recommends the following market and regulatory changes related to energy code:

1. Requiring the Department of Insurance to develop minimum Energy Rating Index (ERI) standards for residential energy code compliance via a study.
2. Developing policies and procedures for code officials to pass homes using the new ERI option, as well as for homes that do not.
3. Allowing for certified Home Energy Raters (HERS Raters) to perform energy code inspections on behalf of code officials using the International Code Council (ICC) and RESNET approved certification program.
4. Performing a study of commercial energy code compliance and code official enforcement to better understand and address gaps and weaknesses across the state.
5. Examining opportunities to increase minimum energy code requirements for existing residential and commercial buildings.
6. Supporting proper training and implementation of the new code via educational workshops to builders, contractors, code officials and others involved in residential and commercial construction.
7. Including high performance construction techniques and performance testing in new General Contractor continuing education requirements.